

REMARKS

The above Amendments and these Remarks are in reply to the Office Action mailed January 11, 2005. Claims 25-40, 42-57, 59, 60, 82-86, 92-94, 100 and 102 were pending in the Application prior to the outstanding Office Action. Claims 46 is being amended. Claims 25-40, 42-57, 59, 60, 82-86, 92-94, 100 and 102 remain for the Examiner's consideration. Reconsideration and withdrawal of the outstanding rejections and objections are respectfully requested.

1. CLAIM REJECTIONS UNDER 35 U.S.C. § 112

Claims 27 and 46 were rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter. More specifically, it was asserted in the office action that the cross section of the pin electrode 232 shown in FIG. 4I would be "circular and not triangle-shaped."

Every 3-dimensional object has more than one cross section. Accordingly, there is more than one cross section of the pin electrode 232 shown in FIG. 4I. While it is true that one cross section of the pin electrode 232 shown in FIG. 4I is circular, it is also true that another cross section of the pin electrode 232 of FIG. 4I (i.e., from the tip toward the base) would be triangular-shaped.

In the Office Action, there is a remark that the Examiner is interpreting the pin-shaped electrode to be cone-shaped. While the pin-shaped electrode should not be limited to cone-shaped, it clearly includes a cone shape, as shown in FIG. 4I. If you slice a cone shape along a plane that is parallel to the tip and base of the cone, the cross section would be circular, as the examiner suggested. However, if you slice the cone from the tip toward the base, the cross-section is clearly triangular.

Thus, Applicants respectfully assert that the pin electrode 232 shown in FIG. 4I does indeed have "a triangular-shaped cross section." Accordingly, it is respectfully requested that the 112, second paragraph rejection of claims 27 and 46 be withdrawn.

2. CLAIM OBJECTIONS

Claim 25 was objected to because it used the term "a closest said pin electrode." Applicants respectfully assert that claim 25 is proper as written. Claim 25 requires "a plurality of pin-ring electrode configurations located one above the other" and "each of said pin-ring electrode configurations including a pin electrode that is directed toward an opening in a ring electrode." By saying that each said ring electrode includes a flat surface and a convex curved surface that generally face a closest said pin electrode, claim 25 makes it clear that each ring electrode includes specific surfaces that generally face a specific one of the multiple pin electrodes, i.e., a closest said pin electrode.

3. DOUBLE PATENTING

Claims 25-27, 32, 36-39, 41-46, 51, 55, 56, 58-60, 82, 86, 87, 92-94, 100 and 102 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 3-4, 6-10, 13-16, 22-26, 36 and 37 of U.S. Patent No. 6,544,485. While Applicants do not necessarily agree with this double patenting rejection, Applicants are submitting a timely filed Terminal Disclaimer herewith to expedite prosecution. A Certificate of Ownership has already been filed in this case. Accordingly, Applicants respectfully request that this double patenting rejection be withdrawn.

4. PREVIOUS CLAIM REJECTION UNDER 35 U.S.C. § 102(e)

Applicants thank the Examiner for withdrawing the previous rejections of claims 25-33, 36-38, 41-52, 54-55, 58-60, 82-84, 96-87, and 101-102 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 5,975,090 to Taylor et al. As explained in the Reply filed on October 8, 2004, Taylor et al. does not qualify as prior art under 35 U.S.C. § 102(e). As also explained in Section 5.2 below, Taylor et al. does not qualify as prior art that can be used in a 35 U.S.C. § 103(a) rejection.

5. CLAIM REJECTIONS UNDER 35 U.S.C. § 103

Claims 25-33, 35-37, 39, 42-52, 54-56, 59, 82-86, 92-94, 100 and 102 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Kawashima (U.S. Patent No. 4,516,991) in view of Fritzius (U.S. Patent No. 3,638,058).

Claims 34, 40, 53 and 57 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Kawashima (U.S. Patent No. 4,516,991) and Fritzius (U.S. Patent No. 3,638,058) as applied to claims 25 and 44, and further in view of Anzai (U.S. Patent No. 4,772,297).

Claims 38 and 60 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Kawashima (U.S. Patent No. 4,516,991) and Fritzius (U.S. Patent No. 3,638,058) as applied to claims 25 and 44, and further in view of Taylor et al. (U.S. Patent No. 5,975,090).

5.1 DISCUSSION OF CLAIMS, WITH REGARDS TO 35 U.S.C. § 103 REJECTIONS

Independent claim 25, as pointed out in the previous Reply, requires "each said ring electrode includes a flat surface and a convex curved surface that generally face a closest said pin electrode, said convex curved surface surrounding said opening in said ring electrode, and said flat surface surrounding said convex curved surface, such that said convex curved surface curves from said flat surface to said opening."

In Section 13 of the Office Action, the Examiner admitted that "the anode rings of Fritzius do not have a flat surface." However, it was alleged in Sections 13 and 16 of the Office Action, that "it would have been obvious to one of ordinary skill in the art that a slight modification in shapes of an article would have no patentable weight. This is because the anode rings, as taught by Fritzius, are similar to and perform as well as those of the presently claimed invention." The Office Action also said to "see MPEP 2144.04.IV.B." for support for this rejection. For at least the following reasons Application respectfully traverse the 35 U.S.C. 103 rejections.

For the convenience of the Examiner, MPEP 2144.04.IV.B is shown below.

In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966) (The court held that the configuration of the claimed disposable plastic nursing container was a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the claimed container was significant.).

To paraphrase, *In re Dailey* stands for the proposition that changes in shape may be held obvious, absent persuasive evidence that the particular claimed configuration was significant. On the contrary, Applicants assert that the particular claimed configuration of the ring electrodes does indeed provide significant advantages, as explained below.

As explained in the specification "one advantage of the ring-pin electrode assembly configuration shown in FIG. 4I is that the flat regions of the ring-like electrode 242 provide sufficient surface area to which particulate matter 60 entrained in the moving air stream can attach, yet be readily cleaned." (See specification, page 21, line 35 - page 22, line 2.) As also explained in the specification, "as best seen in FIG. 4J, curved region 246 adjacent the central opening in electrode 242 appears to provide an acceptably large surface area to which many ionization paths from the distal tip of the electrode 232 have substantially equal path length." (See specification, page 22, lines 28-32.) Additionally, it is explained that "while the distal tip (or emitting tip) of electrode 232 is advantageously small to concentrate the electric field between the electrode arrays, the adjacent regions of [ring] electrode 242 preferably provide many equidistant inter-electrode array paths", thereby providing a high airflow rate. (See specification, page 22, line 32 - page 23, line 3.)

In summary:

- the "flat surface" of the claimed ring electrode provides sufficient surface area to which particulate matter entrained in the created airflow can attach, yet be readily cleaned;

- while the "convex curved surface" of the claimed ring electrode, that surrounds the opening and curves from the flat surface to the opening, provides many equidistant

ionization paths from the pin electrode to the ring electrode, thereby providing a high airflow rate.

In other words, the specific configuration of the claimed ring electrodes provides advantages over a completely flat ring electrode, and provides advantages over completely curved ring electrodes (e.g., as in Fritzius). More specifically, the claimed ring electrodes are advantageous over the completely curved ring electrodes in Fritzius because the claimed ring electrodes have a flat surface that provides sufficient surface area to which particulate matter can attach, yet be readily cleaned (i.e., because the ring electrodes of Fritzius don't include a flat surface they will collect less particulate matter than the claimed ring electrodes, and thus have a lower collecting efficiency). Additionally, the claimed ring electrodes are advantageous over completely flat ring electrodes, because the convex curved surface portion of the claimed ring electrodes provide many equidistant ionization paths from the pin electrodes to the ring electrodes, and thereby should provide a higher airflow rate than flat ring electrodes of similar dimensions.

As pointed out by the Federal Circuit in *In re Fritch*, "The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992). If the Examiner is to maintain this rejection, Applicants respectfully request that the Examiner point out where the prior art suggests providing a ring electrodes that include "a flat surface and a convex curved surface that generally face a closest said pin electrode, said convex curved surface surrounding said opening in said ring electrode, and said flat surface surrounding said convex curved surface, such that said convex curved surface curves from said flat surface to said opening," as required by claim 25.

Kawashima and Anza, alone or in combination, do not teach or suggest the above described deficiencies of Fritzius.

For at least the reasons discussed above, Applicants respectfully assert that independent claim 25, and its dependent claims 26-40, 42-43, 82-86 and 93 are patentable over the cited references.

The remaining independent claims 44, 92 and 102 each require at least one ring electrode that "includes a flat surface and a convex curved surface that generally face said pin electrode, said convex curved surface surrounding said opening in said ring electrode, and said flat surface surrounding said convex curved surface, such that said convex curved surface curves from said flat surface to said opening." For reasons similar to those discussed above with regards to independent claim 25, Applicants believe that independent claim 44 (and its dependent claims 45-57, 59-60 and 94), independent claim 92 (and its dependent claim 100) and independent claim 102 are also patentable over the cited references.

5.2 U.S. Patent No. 5,975,090 to Taylor et al. is NOT prior art

As mentioned above, claims 38 and 60 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Kawashima (U.S. Patent No. 4,516,991) and Fritzius (U.S. Patent No. 3,638,058) as applied to claims 25 and 44, and further in view of Taylor et al. (U.S. Patent No. 5,975,090). However, for the reasons discussed below, U.S. Patent No. 5,975,090 to Taylor et al. does not qualify as prior art to the present application. Accordingly, Applicants request that the 35 U.S.C. §103(a) rejection of claims 38 and 60 be withdrawn.

The present Application has a priority date of November 5, 1998, and names Charles Taylor and Shek Fai Lau as the inventors. U.S. Patent No. 5,975,090, which was filed on September 29, 1998, and issued as a patent on November 2, 1999, also names Charles Taylor and Shek Fai Lau as the inventors. In other words, the '090 patent and the present application have the same inventive entity. Further, the '090 patent was filed less than two month earlier than the prior date of the present application.

The '090 patent does not qualify as prior art under 35 U.S.C. 102(e) because it was "not by another ... before the invention by the applicant" (because it names the same inventors as the present application).

Further, the '090 patent does not qualify for prior art under 35 U.S.C. 102(a) because it was not "by others" (because it names the same inventors as the present application).

Additionally, the '090 patent does not qualify as prior art under 35 U.S.C. 102(b) because it was not printed "more than one year" prior to the priority date of the present application.

In order to be used in a 103(a) rejection, a reference must qualify as prior art under either 35 U.S.C. 102(a), 102(b) or 102(e). However, as explained above, the '090 patent to Taylor et al. does not qualify as prior art. For the above reasons, Applicants respectfully request that all prior art rejections that rely on U.S. Patent No. 5,975,090 to Taylor et al. be withdrawn.

6. CONCLUSION

In light of the above, it is respectfully requested that all outstanding rejections and objections be reconsidered and withdrawn. The Examiner is respectfully requested to telephone the undersigned if he can assist in any way in expediting issuance of a patent.

The Commissioner is authorized to charge the required fees and any underpayment of fees or credit any overpayment to Deposit Account No. 06-1325 for any matter in connection with this reply, including any fee for extension of time, which may be required.

Respectfully submitted,

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